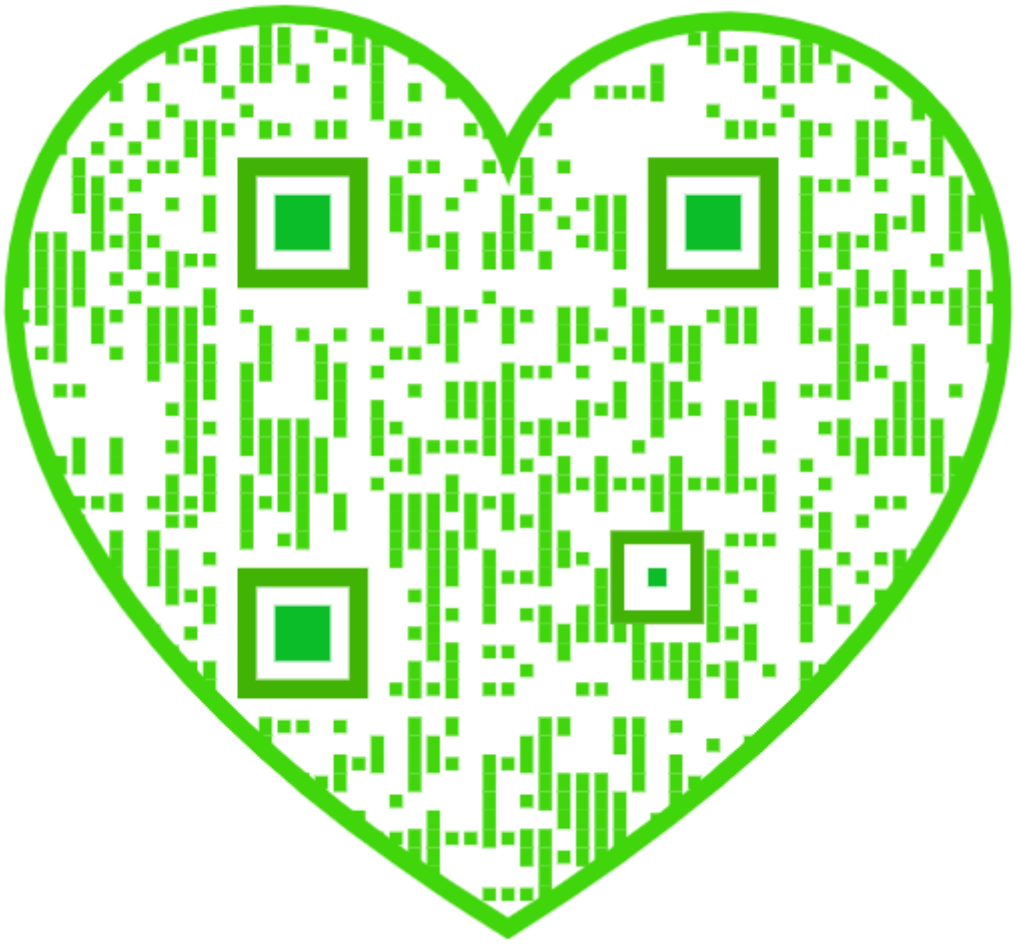
# Master in Artificial Intelligence

# Monitoring and Maintenance I



# Purpose

**The purpose of the section is to help you learn how to monitor and maintain the deployed models to become a Successful Artificial Intelligence (AI) Engineer**

**At the end of this lecture, you will learn the following**

- **How to monitor the deployed models to ensure they continue to perform well over time, and update or retrain them as needed to adapt to changing conditions or requirements**

# How to monitor and maintain the deployed models

Monitor the deployed models

Ensure they continue to perform well over time

Update or retrain them as needed

Adapt to changing conditions or requirements

# Define Key Performance Metrics

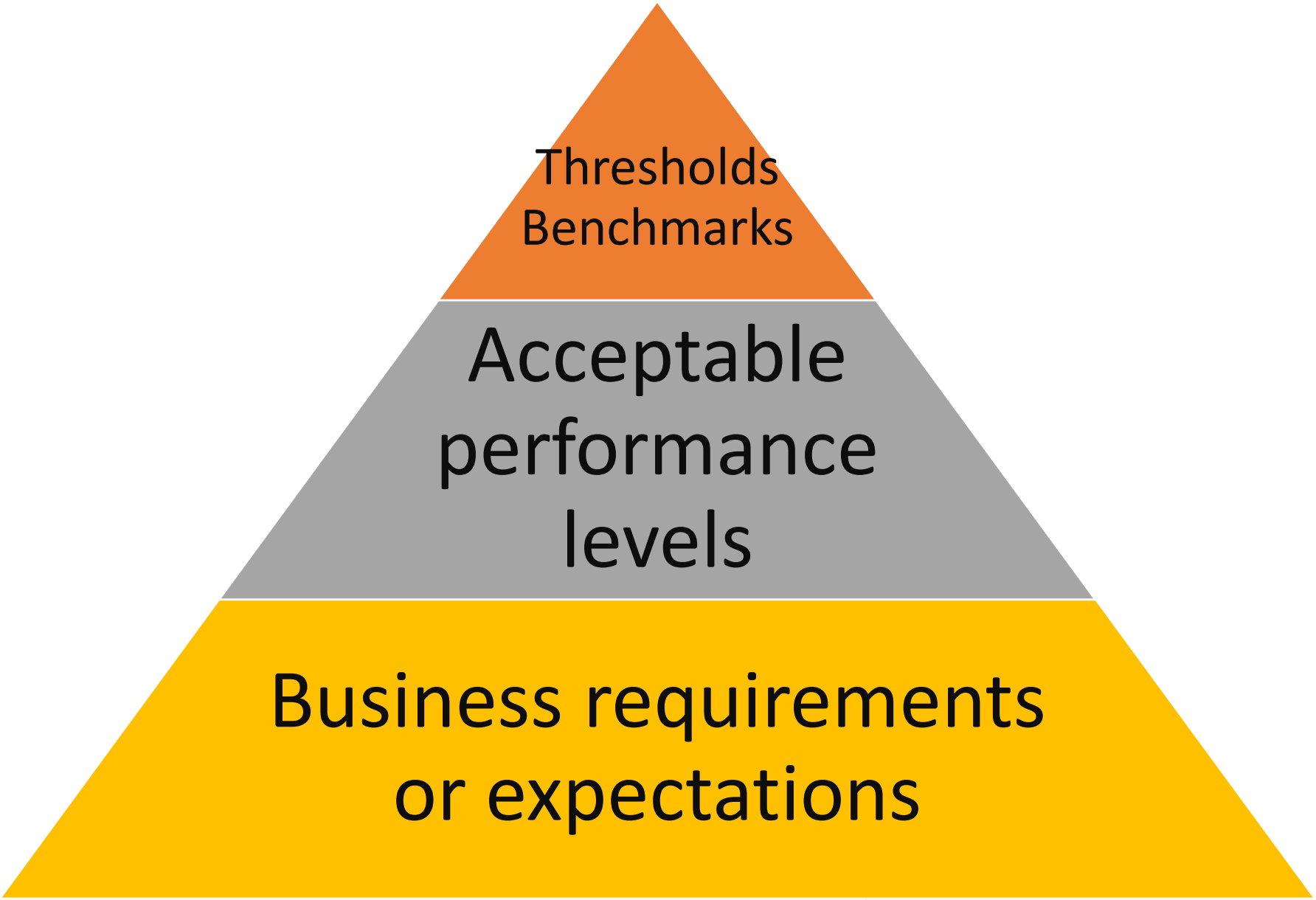
**Regression**
- MSPE
- MSAE
- R Square
- Adjusted R Square

**Classification**
- Precision-Recall
- ROC-AUC
- Accuracy
- Log-Loss

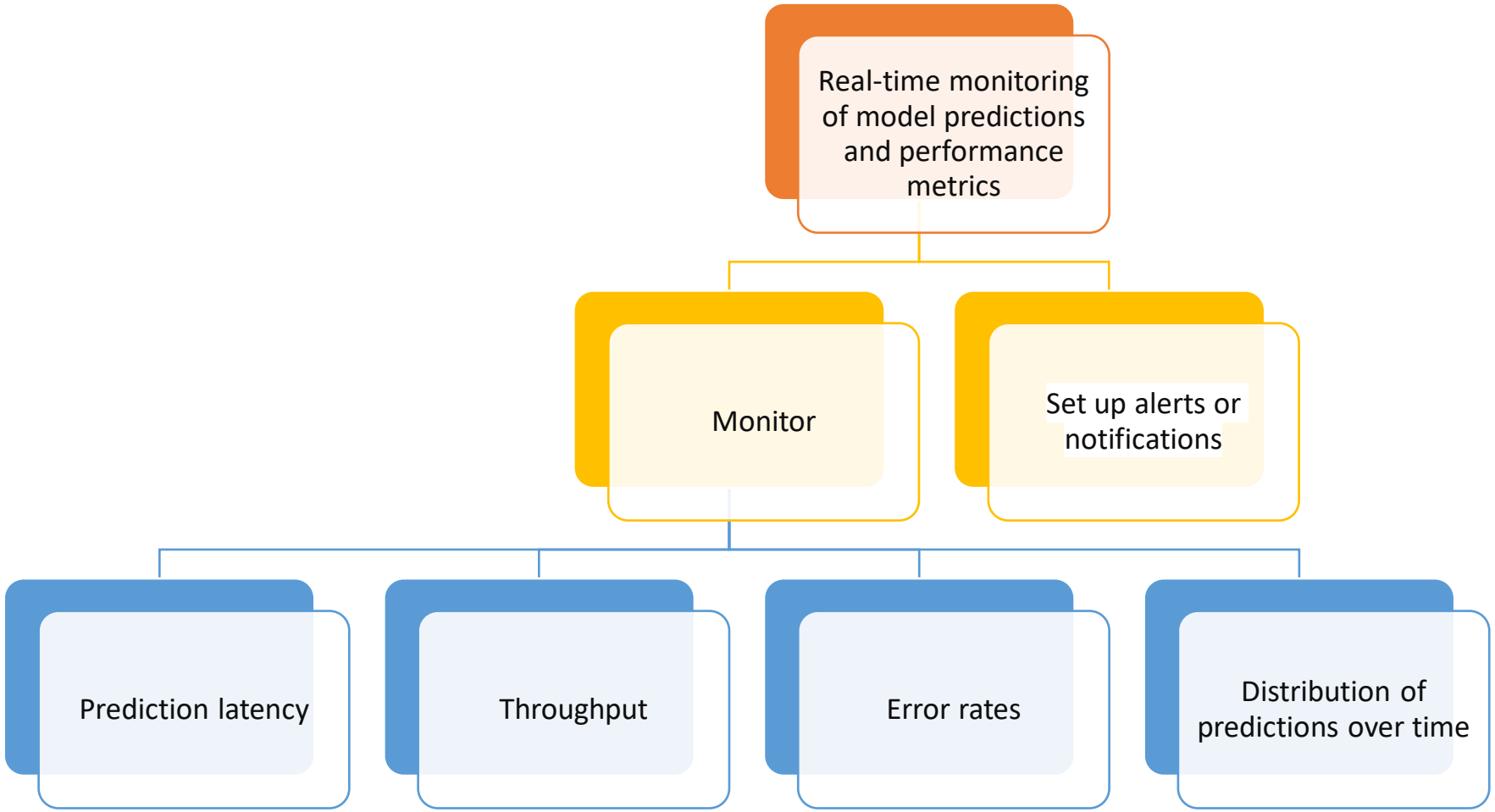
**Unsupervised Models**
- Rand Index
- Mutual Information

**Others**
- CV Error
- Heuristic methods to find K
- BLEU Score (NLP)

# Define Key Performance Metrics



# Real-time Monitoring



# Logging and Auditing

- **Log all**
  - Model predictions
  - Input data
  - Metadata
- **Maintain an audit trail of**
  - Model versions
  - Configuration
  - Updates

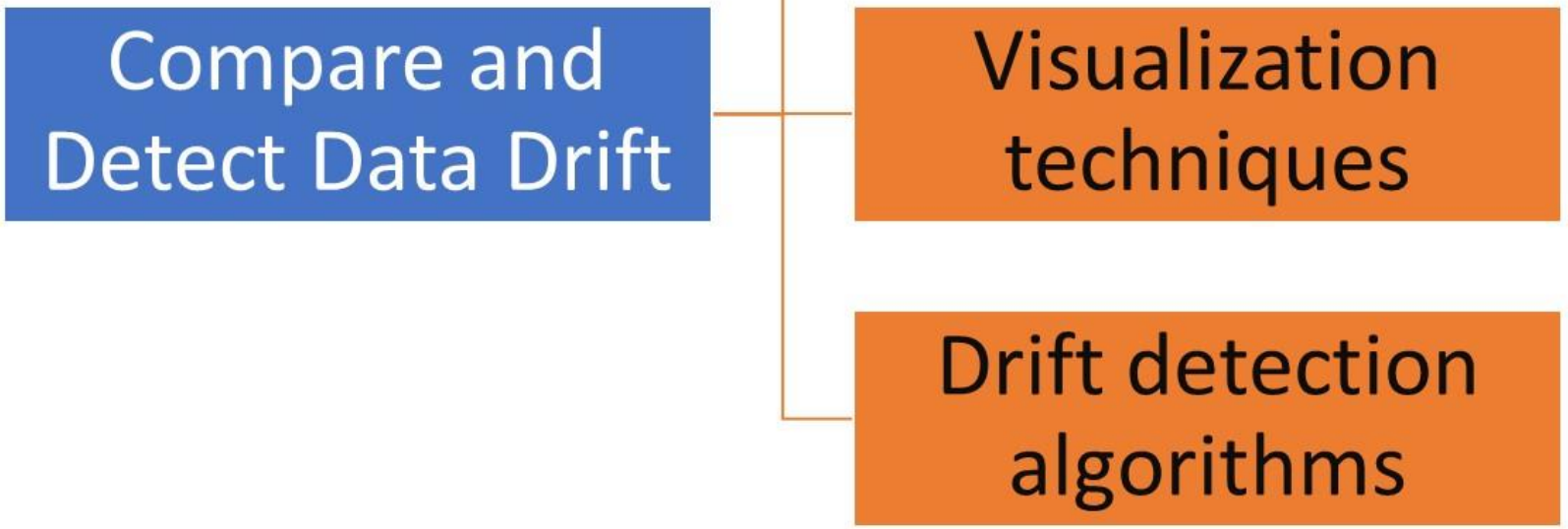
# Data Drift Detection

Compare and Detect Data Drift

- Statistical tests
- Visualization techniques
- Drift detection algorithms

# What is next?

**How to use statistical tests, visualization techniques, or drift detection algorithms to identify data drift**



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